

ABSTRACT OF THE DISCLOSURE

[234] An optical resonator including is designed is to degrade the ability of the resonator to supportsuppress higher order transverse spatial modes. The inventive optical resonator forces Higher higher order transverse modes to be fundamentally unstable in the inventive optical resonator,, ultimately achievingultimately to achieving single transverse mode resonator operation. Specifically, the bounded phase deflection mirror shape or intracavity lens profile is tailored to confine the fundamental mode while rendering the higher order modes unstable. This has application in MEMS/MOEMS optical resonator devices by suppressing the side modes and increasing the side mode suppression ratio (SMSR), as well as improving SMSR tolerance to device external alignment, for example. This also has application to achieving single transverse mode operation in laser resonators, such as in semiconductor vertical-cavity surface-emitting lasers (VCSEL).